

# Physics in Technology

X

Volume 19 1988

QC  
1  
R 392



Digitized by the Internet Archive  
in 2024

# **Physics in Technology**

**Volume 19 1988  
Pages 1-248**

**Published by  
IOP Publishing Ltd  
Bristol**

**Copyright © 1988 by IOP Publishing Ltd and individual contributors.  
All rights reserved.**

IOP Publishing Ltd permits single copying of single articles for private study or research, irrespective of where the copying is done. Multiple copying of the contents or parts thereof without permission is in breach of copyright. Permission is usually given upon written application to IOP Publishing Ltd to copy illustrations and short extracts from the text of individual contributions provided that the source is acknowledged. Authorisation to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by IOP Publishing Ltd for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of \$2.50 per copy is paid directly to CCC, 27 Congress Street, Salem, MA 01970.  
0305-4624/87 \$2.50+\$0.00.

Published by  
IOP Publishing Ltd  
Techno House, Redcliffe Way, Bristol BS1 6NX

Typeset in the UK by Avon Communications Ltd, Nailsea, Bristol BS19 2DJ and printed in the UK by Burgess and Son (Abingdon) Ltd, Abingdon, Oxfordshire OX14 3LE.  
Set in 9/11 pt Times

# **Physics in Technology**

## **Chairman and Honorary Editor**

K H Spring M Sc Ph D C Eng F Inst P F IEE F IMech E

## **Editorial Board**

B F Bradley C Phys F Inst P

A J Crocker C Phys Ph D F Inst P

M H Dickens Ph D M Inst P

E F Krimmel Dr rer nat MEMRS

W E J Merz Ph D

S L Partridge C Phys M Inst P

E P Raynes C Phys Ph D F Inst P

P Roman C Phys Ph D

R Rothwell C Phys Ph D M Inst P

D Sigurd D Eng

D W Swift C Phys Ph D F Inst P

N H E Ahlers B Sc C Phys M Inst PM Inst M

(IOP Industry Officer)

## **Executive Editor**

M A Ware M A MBA

## **Production Manager**

S E Toop C Phys M Sc M Inst P

## **Staff Editors**

A P Ashby B Sc MAIE (industry/education)

J R Membrey B Sc Ph D (production)



## Contents of Volume 19 1988

---

### January

- 3 Physical phenomena in lamps: M A Cayless  
11 Combined heat and power in the UK: P D Lilley  
18 Physics in the food industry: C B Holt  
24 Chemical microsensors: a new generation of microelectronic devices?  
N J Evans

*Book reviews* 30   *Conference reports* 33  
*Talking point* 37

---

### March

- 43 The new strong cements: their use in structures: H H Bache  
51 Industrial applications of colour science: K McLaren  
58 Electronic ceramics: R W Whatmore  
67 Magnetron sputtering: S Swann

*Conference reports* 76   *Talking point* 78

---

### May

- 84 To fly like a bird: M V Cook  
91 Colour LCD TV: J C White  
101 Digital optics, smart interconnect or optical logic? Part 1: J E Midwinter  
109 High-temperature heat-pump fluids: M P Bertinat  
114 Research at Pilkington: L H A Pilkington

*Editorial: Industry and Europe* 83  
*Conference reports* 121   *Talking point* 126

---

### July

- 131 The physics of automatic letter sorting: R Paris  
141 Batteries – past, present and future: G Cove  
146 The new research selectivity: P K Hoch  
153 Digital optics, smart interconnect or optical logic Part 2: J E Midwinter  
158 Permanent magnets: W D Corner

*Talking point* 166

---

# September/ November

- 172 The history and mathematics of rockets: J C Newby  
181 Getting it together – and keeping it that way: the integrity of aircraft structures: W G Heath  
188 Electronic dot generation: A A Mortimer  
196 Processing light signals: K Ploog  
206 Physics and the problems of defective vision: W N Charman  
213 Healthcare technology at Fulmer: W E Duckworth  
220 Electricity brings new approaches to drying: P J Hulls  
227 Thyristors for HVDC transmission: H Mitlehner and H-J Schulze  
234 Physics and adhesion: K W Allen

*Editorial: Farewell to Phys Tech 171*

*Book reviews 241 Talking point 242*